

Hedychium dichotomatum (Zingiberaceae), a New Species from Southern China

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Hedychium dichotomatum Picheans. & Wongsuwan, a new species from Southern China, is proposed. Full descriptions and illustrations are given. Relationship with its closely related species, *H. kwangsiense* T. L. Wu & S. J. Chen, is also discussed.

Key words: China, *Hedycium dichotomatum*, new species, Zingiberaceae.

The genus *Hedychium*, established in 1783 by J. König, is a medium-size genus of the family Zingiberaceae. Inflorescences of this plant group are generally showy and fragrant, some of which are widely cultivated for ornamental purpose. Some taxa are also useful ethnobotanically, including in indigenous medicine (Picheansoonthon and Wongsuwan 2008).

Taxonomic revision of the genus for Thailand was recently concluded with a total of 21 species and six varieties (Wongsuwan and Picheansoonthon 2011, 2012). Eight of the Thai species are distributed from southern China to northern Thailand, two of which were newly recorded for Thailand, *Hedychium neocarneum* T. L. Wu, K. Larsen & Turland and *H. pauciflorum* S. Q. Tong (Wongsuwan and Picheansoonthon 2011, 2012). In order to understand the taxa common to both Thailand

and China, we traveled several times to China to visit several herbaria and locations where these species are native.

Twenty-eight species (18 endemic) were enumerated for China (Wu and Larsen 2000). Since then, two new species were added, *Hedychium longipetalum* X. Hu & N. Lui (Hu and Liu 2010a) and *H. menghaiense* X. Hu & N. Lui (Hu and Liu 2010b).

During one of our visits to southern China in 2008, we encountered an undescribed *Hedychium* species in Wenshan District of Yunnan Province. This unique species is recognized here as a new species, *H. dichotomatum*.

Taxonomic treatment

Hedychium dichotomatum Picheans. & Wongsuwan, sp. nov. [Figs. 1–2]

This new species is similar to *Hedychium*

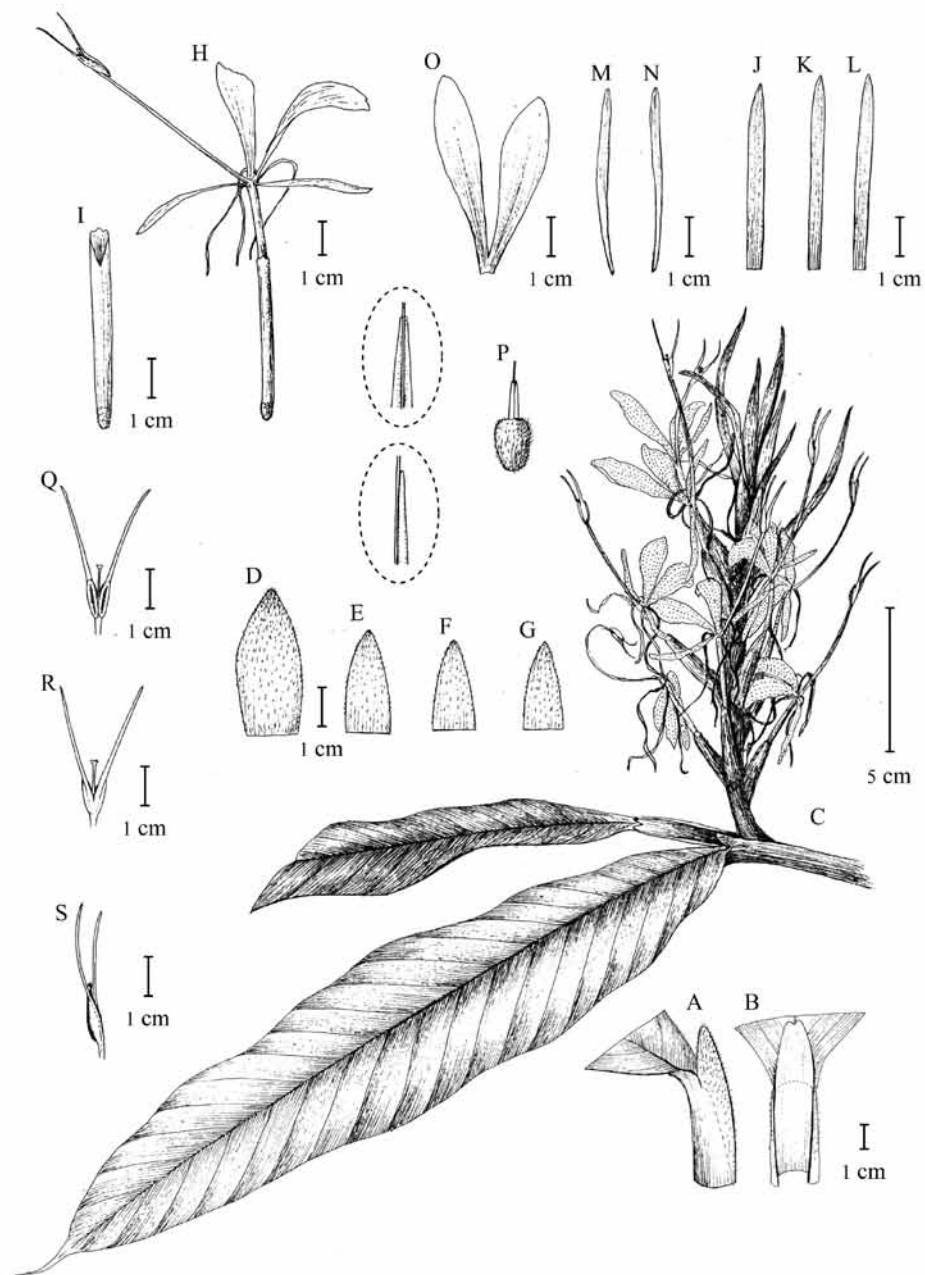


Fig. 1. *Hedychium dichotomatum* Picheans. & Wongsuwan. A, B. Lower part of a leaf showing a ligule (side and front views). C. Flowering top showing leaves and an inflorescence. D. Bract. E. First bracteole. F. Second bracteole. G. Third bracteole. H. Flower showing ovary, calyx tube, corolla tube and lobes, lateral staminodes, labellum, filament with 2-splitted parts and anther. I. Calyx tube and ovary. J. Dorsal corolla lobe. K, L. Lateral corolla lobes. M, N. Staminodes. O. Labellum. P. Ovary and epigynous glands. Q, R, S. Anther, stigma and the dichotomous filament (front, rear and side views). Drawn by Chalermchoke Boonchit.

Table 1. Morphological comparison of *Hedychium dichotomatum* and *H. kwangsiense*

	<i>H. dichotomatum</i>	<i>H. kwangsiense</i>
Leaf	lower surface hairy	lower surface glabrous
Petiole	sessile	1–4.5 cm long
Inflorescence	lax-flowered	dense-flowered
Calyx tube	4.2–4.7 cm long, pubescent, apex 3-dentate, longer than bract	ca. 2.5 cm long, hirsute, apex obliquely truncate, equal or shorter than bract
Corolla tube	6.3–6.7 cm long, glabrous	3.3–3.5 cm long, villous
Filament	5.5–6.3 cm long splitting into 2 equal parts (of 1.5–2 cm long)	2.5–2.8 cm long
Anther	0.7–1 cm long	ca. 0.5 cm long

kwangsiense T. L. Wu & S. J. Chen, but differs in the following characters: 1) sessile leaves, 2) hairy lower leaf surface, 3) longer and pubescent calyx tubes (4.2–4.7 cm versus ca. 2.5 cm) with tridentate apices, 4) longer and glabrous corolla tubes (6.3–6.7 cm versus 3.3–3.5 cm), 5) longer filaments (5.5–6.3 cm versus 2.5–2.8 cm) splitting into two equal parts (of 1.5–2 cm long), and 6) longer anthers (0.7–1 cm versus ca. 5 mm) adnate to the splitting point of the filament.

Type: CHINA. Yunnan Province, Wenshan District, 21 August 2008, E. M. Wang 112/2008 (BKF–holotype).

Terrestrial, perennial herb. Pseudostems up to 92.6 cm high, leaf sheaths greenish, bladeless sheaths 2. Leaves sessile; blade lanceolate to oblong, 38.4–44.6 × 9.4–10.1 cm, base cuneate, apex acute, acuminate to caudate, margin entire to slightly undulate, upper surface glabrous, lower surface hairy; ligule greenish, oblong, membranous, 2.5–2.7 × 2.4–2.6 cm, hairy, apex rounded. Inflorescence a terminal spike, erect, ca. 17.6 cm long, hairy; peduncle ca. 12.2 cm long, hairy; bracts absent, folded, greenish, lanceolate to oblong, 3.5–4 × 1.7–1.9 cm, pubescent, each subtending a cincinnus of 3 flowers, apex acute; primary bracteole greenish, oblong or tubular 2.5–3.2 × 0.9–1.1 cm, apex acute, pubescent; secondary bracteole triangular or oblong 2.5–3.1 cm × 7–8 mm, apex acute, pubescent; tertiary bracteole triangular or oblong 1.9–2.4 cm ×

5–6 mm, apex acute, pubescent. Flowers white, fragrant; calyx tubular 4.2–4.7 cm × ca. 4 mm, pubescent, apex 3-dentate; corolla tube slender, 6.3–6.7 cm × ca. 3 mm, 3-lobed, lobes linear, apex hooded, yellowish, 4.5–5 cm × 4–5 mm; lateral staminodes linear, 4.6–5.1 cm × 2–4 mm, apex rounded or acute; labellum apex divided to the base, each lobe elliptic to oblong 4.5–5.2 × 1–1.2 cm, base attenuate into a 0.8–1.3 cm × ca. 2 mm claw, apex acute or rounded; filament white, 5.5–6.3 cm long, leaving the two split parts of the filament free, split filament filiform, 1.5–2 cm × ca. 1 mm; anther yellowish, 0.7–1 cm × ca. 3 mm, adnate to the filament at the splitting point; ovary brownish villous, 5–6 × 3–4 mm, 3-loculed, placentation axile, epigynous glands 2, slender, yellowish, ca. 4 × 2 mm, stigma green, densely ciliate ca. 1 mm. Fruits not seen. Flowering August.

Distribution: This new species is known only from the type location in Wenshan District (Yunnan Province, China).

Ecology: This new species grows under the shade in lower montane scrub at an altitude of 1000–1200 m.

Etymology: The specific epithet refers to the dichotomous filaments, a rather unusual character, of this new taxon.

Note: This new taxon was first discovered during our excursion to the south-western part of Yunnan Province in October 2007, but the



Fig. 2. *Hedychium dichotomatum* Pichens. & Wongsuwan. A. Part of leaves and ligules. B. Inflorescence. C. Flower. D, E, F. Anthers, stigma, and the dichotomous filament (D. Front view, E. Rear view, and F. Side view). Photographed by Pornpimon Wongsuwan.

plant was just past blooming at that time. In September of the following year, our Chinese colleague, Mr. E. M. Wang, brought us the herbarium specimens and rhizomes of the plant. In August 2009, we visited the type locality and found the plant in full bloom.

Hedychium dichotomatum is unique in its dichotomous filament, and the position of anthers at the splitting point on the filament. This character has not yet been observed in other species of the genus (*Hedychium*), or in the family (*Zingiberaceae*).

However, if this character is not taken into consideration, *H. dichotomatum* is probably morphologically closest to *H. kwangsiense* T. L. Wu & S. J. Chen (Wu and Chen 1978). Comparison of the key characters between the two taxa is shown in Table 1.

Other materials studied: Pichensoonthon & Wongsuwan 140808-1, from a cultivated plant (BKF).

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- C. Picheansoonthon ^{a, b, c}, P. Wongsuwan ^a: 中国雲南省産ショウガ科の1新種, *Hedychium dichotomatum*
- 中国雲南省からショウガ科の1新種, *Hedychium dichotomatum* Picheans. & Wongsuwan を記載した。本種は特異な形態の雄しべをもつ。即ち、花糸が等しく二つに分岐し (Fig. 1, Q–S), 葯が花糸の分岐点に付く (Fig. 1, Q)。このような雄しべの形態的特徴は *Hedychium* 属のみならず、ショウガ科全体にも見られないユニークなものである。この雄しべの形質を除けば、本種は同じく中国の広西チワン族自治区から記載された *H. kwangsiense* T. L. Wu & S. J. Chen に似る。 *H. dichotomatum* は *H. kwangsiense* から、葉が無柄で下面に毛がなく、萼筒がより長くかつ有毛で先端に三歯があり、花冠がより長く無毛であることで区別できる。本種は今のところ、雲南省 Wenshan 地区以外では知られていない。

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